TASK ORDER (TO)
47QFCA21F0052

Data Transformation of Foundational Military Intelligence (DTMI)

in support of:

Defense Intelligence Agency (DIA)

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C.1 BACKGROUND AND PURPOSE

DIA's demand for Foundational Military Intelligence (FMI), the detailed analysis and cataloging of order of battle, infrastructure, and environmental knowledge to support military plans and operations, has increased at nearly unimaginable rates. Historically, DIA analysts have used various databases and repositories, such as the Modernized Integrated Database (MIDB), to conduct foundational intelligence analysis. DIA is designing the MARS environment to fundamentally change the way DIA analysts conduct foundational intelligence analysis by implementing highly automated means of discovering, ingesting, comparing, conflating, and assigning confidence levels to vast amounts of traditional and non-traditional data. While this TO will not support the development of the eventual Machine-Assisted Analytic Rapid-Repository System (MARS) environment, this TO will transform DIA's current FMI data, for future use in the MARS environment, to meet the needs for rapid discovery and exploitation necessary for decision advantage for the warfighter. Accordingly, the purpose of this TO is to re-cast FMI, through the creation of a modern transition database for MIDB, in order to enable a more comprehensive, scalable, flexible data environment, and rigorous Artificial Intelligence (AI) and Machine Learning (ML)-ready analytic data environment.

C.1.1 AGENCY MISSION

DIA provides military intelligence to warfighters, defense policymakers, and force planners in the Department of Defense (DoD) and the Intelligence Community (IC), in support of United States (U.S.) military planning and operations and weapon systems acquisition. DIA plans, manages, and executes intelligence operations during peacetime, crisis, and war.

C.2 SCOPE

The scope of this TO is to evaluate, integrate, and document current Functional Production Areas (FPA) practices and procedures related to the current collating of FMI data within MIDB, which shall be applied to the development of data models and relationships, and to create a modern transition MIDB database. This shall result in the understanding of how FMI data needs to be gathered and modeled to best represent and execute the current FPA practices and procedures. The modern transition MIDB database shall incorporate the captured findings and enable the development and application of future FMI business processes and tradecraft, modern database design principles, and the cleansing and improving of the quality of current MIDB holdings. This support may require maintenance and sustainment of the MIDB Transition database to support ongoing data quality improvements.

C.3 CURRENT AND FUTURE ENVIRONMENT

Currently, DIA analysts utilize various databases and repositories, such as MIDB, to conduct foundational intelligence analysis. This effort will evaluate and transform the current FMI data across DIA in order to prepare it for transition into the future MARS environment.

There are numerous third-party providers currently supporting the DIA Information Technology (IT) environment. As needed, the contractor shall work with the Government to meet the performance demands, formats, and scalability as new applications or user interfaces change,

adapt, or are replaced within DIA's IT environment. At the same time, the contractor shall respect and work to protect all intellectual property rights of third-party providers through Associate Contractor Agreements (ACA) as defined in Section H.17.

C.3.1 MISSION THREADS AND FOUNDATIONAL CAPABILITIES

DIA FMI operates across six primary Mission Threads:

a. Infrastructure – DoD intelligence on foreign energy, resources, health, population centers, public and military infrastructure, and production and defense industrial facilities.

b. Order of Battle – DoD intelligence on an adversary's strengths and weaknesses, force composition, disposition, including command, control, communications, computers, and intelligence, equipment, logistics and sustainment, force readiness, and mobilization capabilities.

c. Cyber – DoD intelligence on adversaries' communications systems (i.e., telecommunications nodes and networks) to determine availability, connectivity, and vulnerabilities.

d. Space/Counter-Space – DoD intelligence on adversary's inherent and available space capabilities and infrastructure, terrestrial and non-terrestrial objects, facilities, and Order of Battle (OB)/units.

e. Intelligence Mission Data (IMD) – DoD intelligence used for programming platform mission systems in development, testing, operations, and sustainment including, but not limited to, the functional areas of signatures, Electronic Warfare Integrated Reprogramming (EWIR), OB, Characteristics and Performance (C&P), and geospatial intelligence (GEOINT).

f. Intel Support to Targeting – DoD intelligence support to targeting to enable transparency of foundation intelligence data and targeting data, and provide intelligence and operational awareness.

FMI data, tied to the above Mission Threads, is housed in a multitude of repositories across DIA. The majority of the FMI data is classified and resides on the Joint Worldwide Intelligence Communication System (JWICS). MIDB, which resides on JWICS, serves as the primary data repository for FMI. MIDB is currently estimated to have 250 Gigabytes (GB) of FMI data and 4 Terabytes (TB) of graphics. While there are additional data repositories that the contractor may encounter during TO performance (e.g., Cornerstone, FounDRI, Generic Area Limitation Environment (GALE), and Functional Intelligence System of Hierarchical Networks (FISHnet)), the contractor will primarily be focused on FMI data residing in MIDB.

C.4 OBJECTIVE

The objective of this TO is to efficiently and effectively capture and identify how the current MIDB production process business rules can be modernized. That information shall be utilized to integrate and create new and innovative methodologies and data models for the existing FMI currently residing in MIDB and to create an innovative, modern, and cloud-based transition MIDB database. The transition MIDB database shall include innovative technologies that enable

the integration of FMI tools and data, improve data ingestion, increase data scaling, and enhance data exploitation to ensure more interoperable and secure data.

C.5   TASKS

    a.   Task 1 – Provide Project Management Support

    b.   Task 2 – Analysis of the MIDB Production Process

    c.   Task 3 – Develop Integration Methodologies

    d.   Task 4 – Develop Data Models and Relationships

    e.   Task 5 – Improve Data Quality

    f.   Task 6 – Database Scrubbing, Redesign, and Rehosting

    g.   Task 7 – Additional Data Transformation Services (Optional)

While the Government envisions that some support under Tasks 3 through 5 could occur prior to acceptance of the MIDB Production Process Analysis deliverable under Task 2 (**Section F, Deliverable 14**), the contractor shall coordinate with and obtain concurrence from the DIA TPOC and FEDSIM COR prior to beginning performance under Tasks 3 through 5. Once started, Tasks 3 through 5 are not required to be completed sequentially. Additionally, while the Government anticipates that the MIDB transition database strategy will be somewhat informed by the work conducted under Tasks 2 through 5, performance under Task 6 can be initiated at any time in accordance with the contractor's methodology and solution.

C.5.1   TASK 1 – PROVIDE PROJECT MANAGEMENT

The contractor shall provide project management support under this TO. This includes the management and oversight of all activities performed by contractor personnel, including subcontractors, to satisfy the requirements identified in this Performance Work Statement (PWS).

C.5.1.1   SUBTASK 1.1 – ACCOUNTING FOR CONTRACTOR MANPOWER REPORTING

The contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for DIA via a written Contractor Manpower Report (**Section F, Deliverable 23**) until a replacement for the Enterprise Contractor Manpower Reporting Application (ECMRA) has been established. Reporting inputs will be for the labor executed during the period of performance during each Government Fiscal Year (FY), which runs October 1 through September 30.

C.5.1.2   SUBTASK 1.2 – COORDINATE A PROJECT KICK-OFF MEETING

The contractor shall schedule, coordinate, and host a Project Kick-Off Meeting at the location approved by the Government (**Section F, Deliverable 01**). The meeting shall provide an introduction between the contractor personnel and Government personnel who will be involved with the TO. The meeting shall provide the opportunity to discuss technical, management, and security issues, and travel authorization and reporting procedures. At a minimum, the attendees

shall include Key contractor Personnel, the DIA Technical Point of Contact (TPOC), representatives from DIA, other relevant Government personnel, and the FEDSIM Contracting Officer's Representative (COR).

At least three days prior to the Project Kick-Off Meeting, the contractor shall provide a Project Kick-Off Meeting Agenda (**Section F, Deliverable 02**) for review and approval by the FEDSIM COR and the DIA TPOC prior to finalizing. The agenda shall include, at a minimum, the following topics/deliverables:

    a. Points of Contact (POCs) for all parties.

    b. Personnel discussion (i.e., roles and responsibilities and lines of communication between contractor and Government).

    c. Project Staffing Plan and status.

    d. Transition-In Plan (**Section F, Deliverable 10**) and discussion.

    e. Security discussion and requirements (i.e., building access, badges, Common Access Cards (CACs)).

    f. Financial reporting and invoicing requirements.

    g. Baseline Quality Management Plan (QMP) (**Section F, Deliverable 03**).

    h. Earned Value Management (EVM) Plan (**Section F, Deliverable 04**).

The Government will provide the contractor with the number of Government participants for the Project Kick-Off Meeting, and the contractor shall provide sufficient copies of the presentation for all present.

The contractor shall draft and provide a Project Kick-Off Meeting Minutes Report (**Section F, Deliverable 05**) documenting the Project Kick-Off Meeting discussion and capturing any action items.

C.5.1.3   SUBTASK 1.3 – PREPARE A MONTHLY STATUS REPORT (MSR)

The contractor shall develop and provide an MSR (**Section F, Deliverable 06**). The MSR shall include the following:

    a. Activities during the reporting period, by task (include ongoing activities, new activities, and activities completed, and progress to date on all above mentioned activities). Each section shall start with a brief description of the task.

    b. Problems and corrective actions taken. Also include issues or concerns and proposed resolutions to address them.

    c. Personnel gains, losses, and status (security clearance, etc.).

    d. Government actions required.

    e. Schedule (show major tasks, milestones, and deliverables; planned and actual start and completion dates for each).

    f. Summary of trips taken, conferences attended, etc. (attach Trip Reports to the MSR for reporting period).

    g. EVM statistics.

h. Cost incurred by CLIN.

i. Accumulated invoiced cost for each CLIN up to the previous month.

j. Projected cost of each CLIN for the current month.

C.5.1.4 SUBTASK 1.4 – EARNED VALUE MANAGEMENT (EVM)

The contractor shall employ and report on EVM in the management of this TO using a tailored plan consistent with the contractor's technical approach. See **Section H.9** for the EVM requirements.

C.5.1.5 SUBTASK 1.5 – CONVENE TECHNICAL STATUS MEETINGS

The contractor Project Manager (PM) shall convene a monthly Technical Status Meeting with the DIA TPOC, FEDSIM COR, and other Government stakeholders (**Section F, Deliverable 07**). The purpose of this meeting is to ensure all stakeholders are informed of the monthly activities and MSR, provide opportunities to identify other activities and establish priorities, and coordinate resolution of identified problems or opportunities. The contractor PM shall provide minutes of these meetings, including attendance, issues discussed, decisions made, and action items assigned, to the FEDSIM COR (**Section F, Deliverable 08**).

C.5.1.6 SUBTASK 1.6 – PREPARE AND UPDATE A PROJECT MANAGEMENT PLAN (PMP)

The contractor shall document all support requirements in a PMP and shall provide it to the Government (**Section F, Deliverable 09**).

The PMP shall:

a. Describe the proposed management approach.

b. Contain detailed Standard Operating Procedures (SOPs) for all tasks.

c. Include milestones, tasks, and subtasks required in this TO.

d. Provide for an overall Work Breakdown Structure (WBS) with a minimum of three levels and associated responsibilities and partnerships between Government organizations.

e. Describe in detail the contractor's approach to risk management under this TO.

f. Describe in detail the contractor's approach to communications, including processes, procedures, and other rules of engagement between the contractor and the Government.

g. Include the contractor's QMP and EVM Plan.

The PMP is an evolutionary document that shall be updated annually at a minimum and as project changes occur. The contractor shall work from the latest Government-approved version of the PMP.

C.5.1.7 SUBTASK 1.7 – PREPARE TRIP REPORTS

The Government will identify the need for a Trip Report when the request for travel is submitted (**Section F, Deliverable 10**). The contractor shall keep a summary of all long-distance travel including, but not limited to, the name of the employee, location of travel, duration of trip, and

POC at travel location. Trip reports shall also contain Government approval authority, total cost of the trip, a detailed description of the purpose of the trip, and any knowledge gained. At a minimum, Trip Reports shall be prepared with the information provided in Section J, Attachment D.

C.5.1.8   SUBTASK 1.8 – PROVIDE QUALITY MANAGEMENT (QM)

The contractor shall identify and implement its approach for providing and ensuring quality throughout its solution to meet the requirements of the TO. The contractor shall provide a QMP and maintain and update it as changes in the program processes are identified (**Section F, Deliverable 03**). The contractor's QMP shall describe the application of the appropriate methodology (i.e., quality control and/or quality assurance) for accomplishing TO performance expectations and objectives. The QMP shall describe how the appropriate methodology integrates with the Government's requirements.

C.5.1.9   SUBTASK 1.9 – TRANSITION-IN

The contractor shall provide a Transition-In Plan (**Section F, Deliverable 11**) and at a minimum, the Transition-In Plan shall address the following:

   a. The contractor's transition approach, process, and timelines.
   b. The contractor's identified roles and responsibilities.
   c. The contractor's identified technical, management, and staffing risks; risk management methodology; and identified mitigations to ensure disruptions are minimized.
   d. The contractor's knowledge transfer and training methodology.
   e. How the use of a Co-Utilization Agreement (CUA) or Joint-Utilization Agreement (JUA) (if proposed by the contractor) in accordance with the requirements in Section H and Section J, Attachments G and G.1 would impact the contractor's transition-in approach and the contractor's ability to complete transition activities.
   f. Identification of information expected from the Government and any actions contemplated on the part of the Government.

The contractor shall ensure that there will be minimal disruption to vital Government business and no service degradation during and after transition. The contractor shall implement its Transition-In Plan No Later Than (NLT) ten calendar days after award, and all transition activities shall be completed 90 calendar days after Project Start (PS).

C.5.1.10   SUBTASK 1.10 – TRANSITION-OUT

The contractor shall provide transition-out support when required by the Government. The Transition-Out Plan shall facilitate the accomplishment of a seamless transition from the incumbent to incoming contractor/Government personnel at the expiration of the TO. The contractor shall provide a Transition-Out Plan within six months of PS (**Section F, Deliverable 12**). The contractor shall review and update the Transition-Out Plan in accordance with the specifications in Sections E and F.

In the Transition-Out Plan, the contractor shall identify how it will coordinate with the incoming contractor and/or Government personnel to transfer knowledge regarding the following:

    a. Project management processes.

    b. POCs.

    c. Location of technical and project management documentation.

    d. Status of ongoing technical initiatives.

    e. Government-Furnished Property (GFP) (if applicable).

    f. Appropriate contractor-to-contractor coordination to ensure a seamless transition.

    g. Transition of Key Personnel roles and responsibilities.

    h. Schedules and milestones.

    i. Actions required of the Government.

The contractor shall also establish and maintain effective communication with the incoming contractor/Government personnel for the period of the transition via weekly status meetings or as often as necessary to ensure a seamless transition-out.

The contractor shall implement its Transition-Out Plan NLT six months prior to expiration of the TO.

C.5.2 TASK 2 – ANALYSIS OF THE MIDB PRODUCTION PROCESS

The contractor shall conduct an analysis of the MIDB production process, including conducting analyst interviews, for each of the 48 FPAs (Section J, Attachment T) within MIDB to include targeting, and evaluate and deconstruct each FPA's SOPs or Object Based Production (OBP) processes. This analysis is required to understand DIA tradecraft including the data that analysts utilize and workflows that analysts go through to produce all-source intelligence products. The objective is to establish best practices and business rules for analyst workflows and to develop technical and transitional strategies that address existing foundational intelligence holdings and needs. The contractor shall:

    a. Develop a survey question template (**Section F, Deliverable 13**) to capture common and unique MIDB workflow across all MIDB FPAs.

    b. Utilize existing FPA technical SOPs or OBP roadmaps, when relevant and applicable, for both MIDB-specific step-by-step standards and the analyst workflow for sourcing and populating attribute fields.

    c. Identify attributes exclusive to categories or FPAs and consolidate common field population requirements.

    d. Capture MIDB remark population requirements, structured versus unstructured texts, and free texts along with which type of remark is required (e.g., source, facility significance, targeting, etc.).

The contractor shall document its analysis of all MIDB FPAs and identify changes and process improvements (**Section F, Deliverable 14**) that DIA could implement to streamline and re-imagine how it describes the record. Within this deliverable, the contractor shall also document

and identify quality issues found and define and/or refine security classification procedures for the Government's review and approval as required.

C.5.3 TASK 3 – DEVELOP INTEGRATION METHODOLOGIES

The contractor shall develop and document agile, innovative, repeatable, and automated methodologies and transition paths for data migration and ingestion based on the findings identified under Task 2. These methodologies and transition paths shall be utilized to develop data models and relationships under Task 4 and shall also be incorporated into and compatible with the transition MIDB database developed under Task 6. The contractor shall recommend and develop means to extract and parse all forms of remarks and shall:

   a. Develop automated data decomposition algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) to automate consistent data formatting (i.e., check and correct variables within data attributes, such as data formats or set numeric ranges, for consistency and out-of-range values). This shall inform Task 4 – Develop Data Models and Relationships.

   b. Develop algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) to automate Natural Language Processing (NLP) of remark sections and to extract and normalize data entities and attributes. As a part of the algorithm and/or script development, the contractor shall also develop automated remark drafting that will utilize these normalized attributes. The contractor shall also recognize and maintain security classification to properly classify any extracted attributes.

   c. Develop automated data record algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) to find and select data values that are null or incorrect.

   d. Develop automated data aggregation algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) that logically aggregate data value to data objects in order to improve data consistency within data objects and processing time.

For each algorithm or script developed under this Task, the contractor shall provide an accompanying illustration or similar documentation that explains how the algorithms and scripts will achieve the stated objectives (**Section F, Deliverable 17**).

C.5.4 TASK 4 – DEVELOP DATA MODELS AND RELATIONSHIPS

The contractor shall identify and develop new and innovative data models (conceptual, logical, and physical) and data relationships (**Section F, Deliverable 18**) that result from engagement with the analyst (Task 2) and FMI data conditioning and will improve operational focus areas such as targeting and indications and warnings. These data models and data relationships shall result in improved FMI data scaling and enable the processing of large amounts of FMI data by DIA analysts in less time with no loss in data quality.

The contractor shall also use the automated data decomposition algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) that analyze FMI data attributes to determine if more specific, operationally relevant relationships can be captured via data decomposition into separate parts such as detailing the day of the week as a separate, categorical value from the date and incorporate the results into business rules or a data model as appropriate.

C.5.5 TASK 5 – IMPROVE DATA QUALITY

The contractor shall develop and document the following innovative methodologies in order to improve data quality prior to its transition to the transition MIDB database:

    a. Develop automated data cleaning algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) that insert missing FMI data values for a missing categorical or numeric value. For example, inserting assumed, approximate, non-applicable, or not observed for categorical values and assumed, approximate range, or mean values for numeric values.

    b. Develop automated data rescaling algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) that provide options for the modeling and presentation of numerical data by using categorical values as well as presenting categorical values as numerical ranges.

    c. Develop the capability to support both ranges and precise integers within automated data discretization algorithms (**Section F, Deliverable 15**) and/or scripts (**Section F, Deliverable 16**) that transform multiple, closely spaced, numeric values into discrete categorical grouping values which would significantly reduce human data entry/manual record production time over current processes.

For each algorithm or script developed under this Task, the contractor shall provide an accompanying illustration or similar documentation that explains how the algorithms and scripts will achieve the stated objectives to improve data quality (**Section F, Deliverable 19**).

C.5.6 TASK 6 – DATABASE SCRUBBING, REDESIGN, AND REHOSTING

The contractor shall build a cloud-based, innovative, and fully functional transition MIDB database on JWICS (**Section F, Deliverable 20**), incorporating developments from Tasks 2 through 5. The only DIA approved, cloud-based solution for JWICS is Amazon's Commercial Cloud Services (C2S).

The contractor shall also support the Assessment and Authorization (A&A) process within DIA for the contractor-developed transition MIDB database. The Government will determine which of the two established A&A paths the transition MIDB database will follow - either DevOpsSec or full Risk Management Framework (RMF)+.

Additionally, the contractor shall provide the corresponding services which minimally replicate the MIDB database capabilities in the following ways:

    a. Rehost the MIDB data from Sybase into a new cloud-based and innovative transition database which includes redesigning the data model using requirements and guidance provided by the Government and migrating the data into the new data model(s) developed in Task 4.

    b. Leverage the existing MIDB java Data Access Layers (DAL) services to be able to interact with the transition database.

    c. Refactor and rehost existing business rules and stored procedures in MIDB Sybase to run in a services layer and add any additional rules as required from Tasks 2 through 5.

d. Work with the MARS Government Program Management Office (PMO) to identify and, if necessary, implement an effective method to geographically replicate data in order to address latency issues and availability within the transition MIDB database.

e. Keep MIDB compatible data synchronized between the legacy MIDB Sybase database and the transition database until the legacy database is retired.

f. Ensure the rehosted transition database is interoperable with MIDB.

g. Develop a Data Quality Assurance Plan (**Section F, Deliverable 21**) that documents deficiencies in data quality, sources of those deficiencies, potential mitigations, and constraints associated with those mitigations, and includes benchmarks for data quality that have not been addressed in the above Tasks.

h. Leverage the results of Tasks 3 through 5 and applicable results from bullet g above (Section C.5.6.g) and scrub the database to address fixable issues and implement mitigations to improve data quality.

i. Develop the capability to monitor and report data quality benchmarks.

C.5.7 TASK 7 – ADDITIONAL DATA TRANSFORMATION SERVICES (OPTIONAL)

In the event that the Government discovers additional FMI data, beyond what is identified in Section C.3.1, DIA will require additional data transformation services. The contractor shall provide additional data transformation services and the requirements and deliverables for this Task are described in Sections C.5.2 through C.5.5 and are within scope of this TO. When the need for additional support is identified and confirmed by the Government, the FEDSIM COR will notify the contractor and the Government will exercise the optional support CLIN.